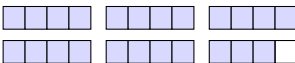
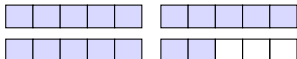
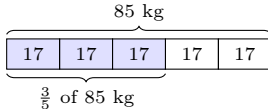
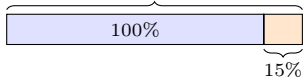
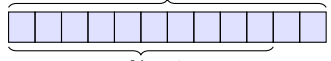
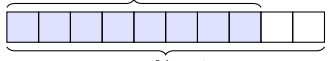


Simplifying fractions FDP 1 Write $\frac{36}{60}$ in its simplest form.	Ordering fractions FDP 2 Write these fractions in order of size, smallest first. $\frac{2}{3} \quad \frac{3}{5} \quad \frac{7}{10} \quad \frac{5}{6}$	Mixed numbers to improper fractions FDP 3 Write $3\frac{2}{5}$ as an improper fraction.	Improper fractions to mixed numbers FDP 4 Write $\frac{23}{4}$ as a mixed number.
Adding fractions with different denominators FDP 5 Work out $\frac{3}{4} + \frac{2}{5}$ Give your answer as a mixed number.	Subtracting fractions with different denominators FDP 6 Work out $\frac{5}{6} - \frac{3}{8}$	Writing one number as a percentage of another FDP 7 Amira scores 42 out of 60 in a test. What percentage is this?	Finding 50%, 10% and 1% FDP 8 Without a calculator, find (a) 50% of £360 (b) 10% of £360 (c) 1% of £360
Fractions to decimals and percentages FDP 9 Write $\frac{3}{8}$ as a decimal and as a percentage.	Decimals to fractions and percentages FDP 10 Write 0.35 as a fraction in its simplest form, and as a percentage.	Percentages to decimals and fractions FDP 11 Write 12.5% as a decimal and as a fraction in its simplest form.	Ordering fractions, decimals and percentages FDP 12 Write these numbers in order of size, smallest first. $\frac{2}{3} \quad 0.6 \quad 65\% \quad \frac{5}{8} \quad 0.67$
Fractions of amounts without a calculator FDP 13 Without a calculator, find $\frac{3}{5} \text{ of } 85 \text{ kg}$	Fractions of amounts with a calculator FDP 14 Use a calculator to find $\frac{7}{12} \text{ of } £56.40$	Percentages of amounts without a calculator FDP 15 Without a calculator, find 35% of 260.	Percentages of amounts with a calculator FDP 16 Use a calculator to find 17% of £84.50. Give your answer to the nearest penny.
Percentage change FDP 17 The price of a bike rises from £240 to £282. Work out the percentage increase.	Simple interest FDP 18 Ravi puts £400 in a savings account that pays 3% simple interest per year. How much is in the account after 5 years?	Adding mixed numbers FDP 19 Work out $2\frac{3}{4} + 1\frac{2}{3}$	Subtracting mixed numbers FDP 20 Work out $3\frac{1}{4} - 1\frac{2}{3}$

AnswerFDP 4 Numerator ÷ denominator: the answer gives the wholes, and the remainder stays over the denominator.  23 ÷ 4 = 5 remainder 3, so $\frac{23}{4} = 5\frac{3}{4}$ Check: whole times denominator, add the numerator: 5 × 4 + 3 = 23	AnswerFDP 3  $3\frac{2}{5} = \frac{3 \times 5 + 2}{5} = \frac{17}{5}$ (3 wholes are 15 fifths, plus 2 fifths makes 17 fifths) Remember: Whole times denominator, add the numerator.	AnswerFDP 2 Convert to denominator 30 (the LCM of 3, 5, 10 and 6): $\frac{2}{3} = \frac{20}{30}$$\frac{3}{5} = \frac{18}{30}$$\frac{7}{10} = \frac{21}{30}$$\frac{5}{6} = \frac{25}{30}$ Smallest first: $\frac{3}{5}, \frac{2}{3}, \frac{7}{10}, \frac{5}{6}$ (answer with the fractions as they were given) Remember: Common denominator, then compare the numerators.	AnswerFDP 1 The HCF of 36 and 60 is 12, so ÷ top and bottom by 12: $\frac{36}{60} = \frac{36 \div 12}{60 \div 12} = \frac{3}{5}$ Or in smaller steps: $\frac{36}{60} = \frac{18}{30} = \frac{9}{15} = \frac{3}{5}$ Remember: What you do to the numerator, do to the denominator.																					
AnswerFDP 8 (a) 50%: halve. 360 ÷ 2 = £180 (b) 10%: ÷10. 360 ÷ 10 = £36 (c) 1%: ÷100. 360 ÷ 100 = £3.60 (money has two decimal places: £3.60, not £3.6) Remember: 10%: ÷10. 1%: ÷100. 50%: halve. Then build up.	AnswerFDP 7 $\frac{42}{60} \times 100 = 70\%$ Without a calculator: $\frac{42}{60} = \frac{7}{10} = \frac{70}{100} = 70\%$ (if the units are different, put both in the same units first) Remember: Part over whole, times 100.	AnswerFDP 6 Common denominator 24 (the LCM of 6 and 8): $\frac{5}{6} - \frac{3}{8} = \frac{20}{24} - \frac{9}{24} = \frac{11}{24}$ (48 also works, but then simplify at the end) Remember: Common denominator. Never subtract the denominators!	AnswerFDP 5 Common denominator 20: $\frac{3}{4} + \frac{2}{5} = \frac{15}{20} + \frac{8}{20}$ $= \frac{23}{20} = 1\frac{3}{20}$ (add the numerators; the denominator stays 20) Remember: Common denominator. Never add the denominators!																					
AnswerFDP 12 As decimals, to 3 decimal places: $\frac{2}{3} = 0.666\dots$ 0.6 = 0.600 65% = 0.650 $\frac{5}{8} = 0.625$ 0.67 = 0.670 Smallest first: 0.6, $\frac{5}{8}$, 65%, $\frac{2}{3}$, 0.67 Remember: Turn everything into decimals, then compare them.	AnswerFDP 11 Per cent means “out of 100”, so ÷100 gives the decimal. 12.5% = 12.5 ÷ 100 = 0.125 The last digit is in the thousandths column: $0.125 = \frac{125}{1000} = \frac{1}{8}$ (÷ top and bottom by 125)	AnswerFDP 10 The last digit is in the hundredths column, so the denominator is 100. $0.35 = \frac{35}{100} = \frac{7}{20}$ (÷ top and bottom by 5) $0.35 \times 100 = 35\%$ Remember: Top ÷ bottom gives the decimal; ×100 gives the %.	AnswerFDP 9 $\frac{3}{8} = 3 \div 8$, by bus stop division: $\begin{array}{r} 0.375 \\ 8 \overline{)3.300} \end{array}$ $\frac{3}{8} = 0.375 = 37.5\%$ (0.375 × 100 = 37.5) Remember: Top ÷ bottom gives the decimal; ×100 gives the %.																					
AnswerFDP 16 17% = 0.17, so calculator: 0.17 × 84.50 = 14.365 = £14.37 to the nearest penny Check: 10% is about £8.50 and 20% is about £17, so £14.37 is sensible. Remember: Per cent means ‘out of 100’; ‘of’ means multiply by.	AnswerFDP 15 10% of 260 = 26 5% = 13 (half of 10%) 35% = 26 + 26 + 26 + 13 = 91 Remember: 10%: ÷10. 1%: ÷100. 50%: halve. Then build up.	AnswerFDP 14 Calculator: $7 \div 12 \times 56.40 = 32.9$ So $\frac{7}{12}$ of £56.40 is £32.90 (money has two decimal places). Check: $\frac{7}{12}$ is a bit more than a half, and £32.90 is a bit more than half of £56.40. Remember: Divide by the denominator, times by the numerator.	AnswerFDP 13  $85 \div 5 = 17, \quad 17 \times 3 = 51$ So $\frac{3}{5}$ of 85 kg is 51 kg. Remember: Divide by the denominator, times by the numerator.																					
AnswerFDP 20 $3\frac{1}{4} - 1\frac{2}{3} = \frac{13}{4} - \frac{5}{3}$ $= \frac{39}{12} - \frac{20}{12}$ $= \frac{19}{12} = 1\frac{7}{12}$ (subtracting the wholes and the fractions separately goes wrong here, as $\frac{1}{4} < \frac{2}{3}$) Remember: Mixed → improper first.	AnswerFDP 19 $2\frac{3}{4} + 1\frac{2}{3} = \frac{11}{4} + \frac{5}{3}$ $= \frac{33}{12} + \frac{20}{12}$ $= \frac{53}{12} = 4\frac{5}{12}$ (for adding, the wholes and the fractions can also be added separately: $3 + \frac{17}{12} = 4\frac{5}{12}$) Remember: Mixed → improper first.	AnswerFDP 18 Simple interest = amount invested × interest rate × number of years ÷100 3% of £400 = £12 a year, × 5 = £60 interest <table><tr><td>Year</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>£</td><td>400</td><td>412</td><td>424</td><td>436</td><td>448</td><td>460</td></tr><tr><td></td><td></td><td>+12</td><td>+12</td><td>+12</td><td>+12</td><td>+12</td></tr></table> Total = 400 + 60 = £460 Remember: Same interest every year: find one year, multiply by years.	Year	0	1	2	3	4	5	£	400	412	424	436	448	460			+12	+12	+12	+12	+12	AnswerFDP 17 Percentage change = $\frac{\text{change in amount}}{\text{original amount}} \times 100$ Change = 282 – 240 = 42 $\frac{42}{240} \times 100 = 17.5\%$ increase (divide by the original amount, not the new amount) Remember: Change over original, times 100.
Year	0	1	2	3	4	5																		
£	400	412	424	436	448	460																		
		+12	+12	+12	+12	+12																		

Multiplying mixed numbers FDP 21 Work out $2\frac{1}{2} \times 1\frac{3}{5}$	Dividing mixed numbers FDP 22 Work out $3\frac{1}{3} \div 1\frac{1}{4}$	Fractions and negative numbers FDP 23 Work out (a) $\frac{1}{3} - \frac{3}{4}$ (b) $-1\frac{1}{2} \div \left(-\frac{3}{4}\right)$	Word problems with mixed numbers FDP 24 A ribbon is $5\frac{1}{4}$ m long. How many pieces $\frac{3}{4}$ m long can be cut from it?
Word problems with mixed numbers FDP 25 A rectangular rug is $2\frac{1}{2}$ m long and $1\frac{1}{3}$ m wide. Find the area of the rug.	Recurring decimals to fractions FDP 26 Write $0.\dot{2}\dot{7}$ as a fraction in its simplest form.	Recurring decimals to fractions FDP 27 Write $0.1\dot{6}$ as a fraction in its simplest form.	Percentage increase with a multiplier FDP 28 Use a multiplier to increase £240 by 15%.
Percentage decrease with a multiplier FDP 29 A car is worth £18 000. Its value falls by 12%. Use a multiplier to find its new value.	Finding the original amount FDP 30 In a sale, everything is 20% off. A coat costs £64 in the sale. What was the original price of the coat?	Finding the original amount FDP 31 After a 20% pay rise, Jo earns £360 a week. How much did Jo earn each week before the pay rise?	

Answer FDP 24 How many fit into: divide. $5\frac{1}{4} \div \frac{3}{4} = \frac{21}{4} \div \frac{3}{4}$ $= \frac{21}{4} \times \frac{4}{3} = \frac{84}{12} = 7$ 7 pieces (21 quarters $\div$ 3 quarters = 7) Remember: Find the numbers, pick the operation, include units.	Answer FDP 23 (a) $\frac{4}{12} - \frac{9}{12} = -\frac{5}{12}$ (b) $-\frac{3}{2} \div \left(-\frac{3}{4}\right) = -\frac{3}{2} \times \left(-\frac{4}{3}\right)$ $= \frac{12}{6} = 2$ (negative $\times$ negative = positive) Remember: Mixed $\rightarrow$ improper first. Dividing? Keep, change, flip. (KFC)	Answer FDP 22 $3\frac{1}{3} \div 1\frac{1}{4} = \frac{10}{3} \div \frac{5}{4}$ $= \frac{10}{3} \times \frac{4}{5}$ $= \frac{40}{15} = \frac{8}{3} = 2\frac{2}{3}$ (keep $\frac{10}{3}$, change $\div$ to $\times$, flip $\frac{5}{4}$ to $\frac{4}{5}$) Remember: Mixed $\rightarrow$ improper first. Dividing? Keep, change, flip. (KFC)	Answer FDP 21 $2\frac{1}{2} \times 1\frac{3}{5} = \frac{5}{2} \times \frac{8}{5}$ $= \frac{40}{10} = 4$ (multiply the tops, multiply the bottoms) Multiplying the wholes and the fractions separately is wrong: $2 \times 1 + \frac{1}{2} \times \frac{3}{5} = 2\frac{3}{10}$, not 4. Remember: Mixed $\rightarrow$ improper first.
Answer FDP 28 Multiplier for an increase = 1 + $\frac{\text{percentage}}{100}$ 115% of £240  Up 15% $\rightarrow \times 1.15$ $240 \times 1.15 = 276$ So £240 increased by 15% is £276. Remember: 100% plus or minus the change, then $\div 100$.	Answer FDP 27 Let $n = 0.1\dot{6} = 0.1666\ldots$ The 1 does not repeat, so use $100n$ and $10n$ to line up the repeats: $100n = 16.6666\ldots$ $10n = 1.6666\ldots$ subtract: $90n = 15$ $n = \frac{15}{90} = \frac{1}{6}$ Remember: Line up the repeats, then subtract them away. Solve algebra.	Answer FDP 26 Let $n = 0.\dot{2}7 = 0.2727\ldots$ Two digits repeat, so $\times 100$: $100n = 27.2727\ldots$ $n = 0.2727\ldots$ subtract: $99n = 27$ $n = \frac{27}{99} = \frac{3}{11}$ Remember: Line up the repeats, then subtract them away. Solve algebra.	Answer FDP 25 Area = length $\times$ width $2\frac{1}{2} \times 1\frac{1}{3} = \frac{5}{2} \times \frac{4}{3}$ $= \frac{20}{6} = \frac{10}{3} = 3\frac{1}{3}$ Area = $3\frac{1}{3} \text{ m}^2$ Check: a bit more than $2\frac{1}{2} \times 1 = 2\frac{1}{2} \text{ m}^2$. Remember: Find the numbers, pick the operation, include units.
	Answer FDP 31 Original amount = new amount $\div$ multiplier 120% is £360  Up 20% $\rightarrow \times 1.2$: $1.2 \times \text{original} = 360$ $\text{original} = 360 \div 1.2 = \text{£}300$ Check: 10% is £30, 100% is £300. Remember: Going backwards? Divide by the multiplier!	Answer FDP 30 Original amount = new amount $\div$ multiplier 80% is £64  20% off $\rightarrow \times 0.8$: $0.8 \times \text{original} = 64$ $\text{original} = 64 \div 0.8 = \text{£}80$ Check: 10% is £8, 100% is £80. Remember: Going backwards? Divide by the multiplier!	Answer FDP 29 Multiplier for a decrease = 1 - $\frac{\text{percentage}}{100}$ 88% is left  Down 12% $\rightarrow \times 0.88$ $18\,000 \times 0.88 = 15\,840$ The new value is £15 840. Remember: 100% plus or minus the change, then $\div 100$.